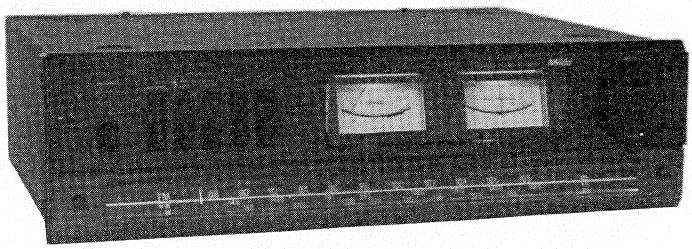
SERVICE MANUAL

Miida

T3000
Stereo Tuner



SPECIFICATIONS

FM SECTION

Tuning Range	87.5–108 MHz
Usable Sensitivity (IHF)	
Mono	2 μV
Stereo	4 μV
50 dB Quieting Sensitivity	
Mono	4 μV
Stereo	40 μV
Signal to-Noise Ratio (mono)	74 dB
Frequency Response	40–15,000 Hz (+0.5, - 2 dB)
Harmonic Distortion	
Mono	0.15%
Stereo	0.3%
Capture Ratio	1.5 dB
Adjacent Channel Selectivity (±200 kHz)	
Minimum	15 dB
Spurious Response Ratio	75 dB
Image Rejection	55 dB
IF Rejection	66 dB
AM Suppression Ratio	50 dB
Muting Threshold	0.9–15 μV
Output Voltage	230 mV
Stereo Separation	
1,000 Hz	45 dB
100–10,000 Hz	38 dB
Stereo Threshold	15 μV
SCA Rejection Ratio	60 dB
Sub-carrier Suppression	60 dB

AM SECTION

Tuning Range	
MW	515–1,620 kHz
LW	150–350 kHz
Usable Sensitivity	
MW	20 μV
LW	40 μV
Image Rejection (MW, LW)	45 dB
IF Rejection (MW, LW)	40 dB
Harmonic Distortion	0.5%
Output Voltage	170 mV

GENERAL

Power Consumption	12 watts
Power Supply	110/220 V AC, 50/60 Hz
Dimensions	442 (W) x 354 (D) x 130 (H) mm
Weight (Net)	6.0 kg. (13.2 lbs.)

Specifications and design are subject to change without notice.

PARTS LIST

Part No.	Description	Symbol No.	Q'ty a set
INTEGRATED CIRCUITS & TRANSISTORS			
LA-1231	IC	IC51	1
LA-1240	IC	IC101	1
LA-3350SS	IC	IC151	1
2SC929(C)	Transistor	Q51	1
2SC536AUD(E),(F)	Transistor	Q155	1
2SC1327(S), (T)	Transistor	Q151, 152	2
2SA721(S), (T)	Transistor	Q153, 154	2
2SC2209(Q), (R)	Transistor	Q201	1
2SD592NC (R)	Transistor	Q801	1
DIODES			
1S1555 or DS-442	Silicon Diode	D51, 52, 151	3
1S188FM	Germanium Diode	D101	1
GL-9PR2	L.E.D.	D851, 852, 853 854, 855	5
1N4002	Silicon Diode	D202, 203, 204, 205, 801	5
EQA01-14R1	Zener Diode	D201	1
CONTROLS			
500Ω B, 8φ	Carbon Trimmer	SVR101	1
1 kΩ B, 8φ	Carbon Trimmer	SVR152	1
5 kΩ B, 8φ	Carbon Trimmer	SVR151	1
30 kΩ B, 8φ	Carbon Trimmer	SVR51	1
AT2-52-7	2P Trimmer Capacitor	TC102 & 104	1
AT2-52-7W	2P Trimmer Capacitor	TC101 & 103	1
COILS & TRANSFORMERS			
141015	FM IFT	T51	1
141016	FM IFT	T52	1
FSN-1072	AM IFT	T101	1
140025	AM IFT	T102	1
140031	AM IFT	T103	1
135005	MW OSC Coil	L101	1
132003	LW OSC Coil	L102	1
125008	Loopstick Antenna	L103 & 104	1
180003	Inductor	L53	1
180004	Choke Coil	L51, 52	2
NPT-0305	Power Transformer		1
SWITCHES			
SW5620017	MW/LW Switch	S101	1
SW1501016	Push Switch	S1-5	1
ESB-7097	AC ON/OFF Switch		1
CONNECTORS & TERMINALS			
171825-06	Micro Plug	6-pin	1
MC06-012	Micro Connector Assy	6-pin	1
B2-703N-10	DIN Antenna Socket		1
D2-711N-00	75Ω Co-axial Socket		1
FUH-001	Fuse Block		2
S-N5053	Fuse Clip		4
FUSES, METERS & LAMPS			
FU-521025T	Fuse (1A)	F203	1
FU-525015T	Fuse (0.5A)	F201, 202	2

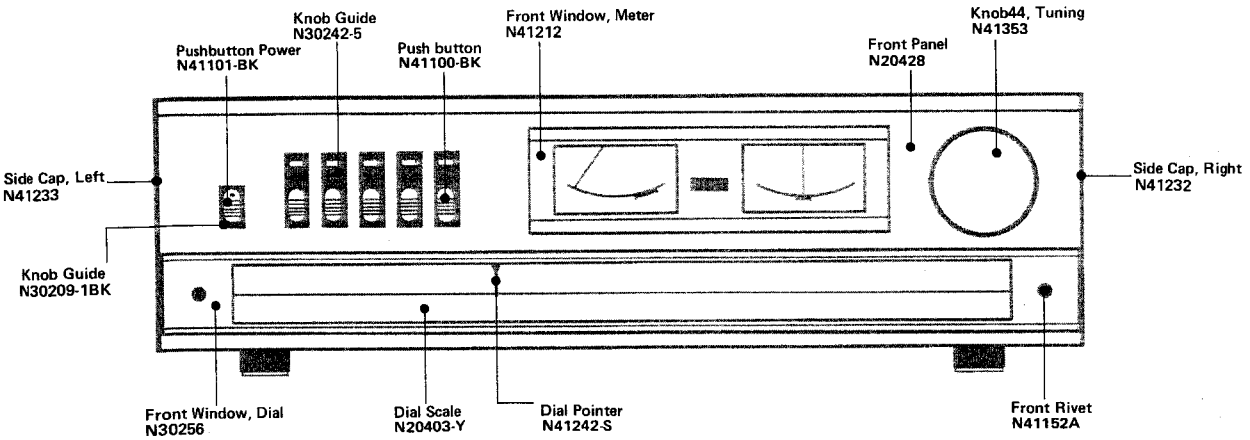
Part No.	Description	Symbol No.	Q'ty a set
KL-258T-12	Signal Meter		1
KL-258T-13	Tuning Meter		1
BF310-50020A	Lamp (Dial)	PL801, 802	2
BQ044-23633A	Lamp (Stereo)	PL803	1
BQ141-26404A	Lamp (Meter)	PL804, 805	2
FILTERS			
184001	L.P. Filter	F151, 152	2
SFE10 7MM-Z	Ceramic Filter	F51, 52	2
RESISTORS			
1/2W, 1 kΩ	Carbon Resistor	R205	1
1W, 82 Ω	Carbon Resistor	R201	1
CAPACITORS			
FC5PF	Ceramic	C110	1
FC10PF	Ceramic	C102	1
FC60PF	Ceramic	C103	1
FC300PF	Ceramic	C67	1
MC 0.001 μF	Ceramic	C52, 111, 114	3
MC 0.01 μF	Ceramic	C116	1
MC 0.02 μF	Ceramic	C53, 54, 60 113, 120	5
SC 0.04 μF	Ceramic	C205, 207, 208 209, 210	5
MC 0.047 μF	Ceramic	C51, 55, 56, 57, 58, 59, 61, 62, 65, 112	10
50V 0.01 (M)	Mylar (± 20%)	C105	1
50V 0.015 (M)	Mylar (± 20%)	C101	1
50V 0.015 (K)	Myler (± 10%)	C118	1
50V 0.022 (M)	Myler (± 20%)	C107	1
50V 0.039 (J)	Myler (± 5%)	C159, 160	2
50V 0.047 (M)	Mylar (± 20%)	C152	1
50V 150 PF (J)	Polystyrene	C106	1
50V 350 PF (J)	Polystyrene	C104	1
50V 1500PF(J)	Polystyrene	C156	1
10TW 470 μF	Electrolytic	C851	1
10TW 1000 μF	Electrolytic	C206	1
16TW 10 μF	Electrolytic	C108	1
16TW 47 μF	Electrolytic	C119	1
16TW 100 μF	Electrolytic	C204, 801	2
16TW 220 μF	Electrolytic	C165	1
16TW 470 μF	Electrolytic	C166	1
25TW 1 μF	Electrolytic	C64, 121, 155, 161, 162	5
25TW 3.3 μF	Electrolytic	C117	1
25TW 4.7 μF	Electrolytic	C68, 115, 151 157, 158	5
25TW 220 μF	Electrolytic	C203	1
25TW 470 μF	Electrolytic	C202	1
35TW 47 μF	Electrolytic	C211	1
35TW 1000 μF	Electrolytic	C201	1
50TW 0.22 μF	Alum. Electrolytic	C154	1
50TW 0.47 μF	Alum. Electrolytic	C63, 66, 153, 163, 164	5
ECN-C4A 103M	Paper	C212, 213	2

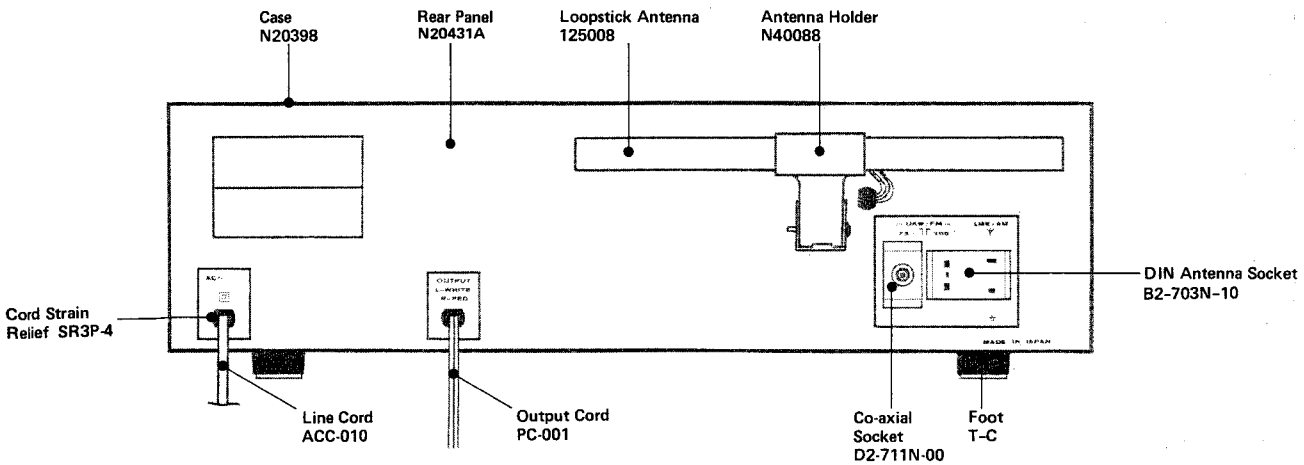
Note:

1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.
3. Resistors not detailed in parts list are all carbon type, ¼ watt. With regard to the value, refer to the schematic diagram.

Part No.	Description	Symbol No.	Q'ty a set
APPEARANCE PARTS			
N20428	Front Panel		1
N30256	Front Dial Window		1
N41212	Front Meter Window		1
N20403-Y	Dial Scale		1
N20398	Case		1
N20431A	Rear Panel		1
N40089-BK	Antenna Bracket		1
N41242-S	Dial Pointer		1
N41232	Side Cap, Right		1
N41233	Side Cap, Left		1
N30209-1BK	Knob Guide		1
N30242-5	Knob Guide		1
N41100-BK	Pushbutton		5
N41101-BK	Pushbutton	Power	1
N41353	Tuning Knob 44		1
N40088	Antenna Holder		1
T-C	Foot		4

Part No.	Description	Symbol No.	Q'ty a set
N41379	Front Rivet		2
ACC-010	Line Cord		1
SR-3P-4	Cord Strain Relief		3
PC-001	Output Cord		1
MISCELLANEOUS			
FB-127U16	FM/AM Tuning Unit		1
FRL-644D12/2AS	Reed Relay		1
SWR-126	Remote Wire		1
OM-125	Instruction Book		1
PACKING MATERIAL			
N41318	Poly. Bag	for Unit	1
N40487	Poly. Bag	for Inst. Book	1
N20389	Pad, Right		1
N20390	Pad, Left		1
N41321	Pad, Top		1
N41358	Carton		1





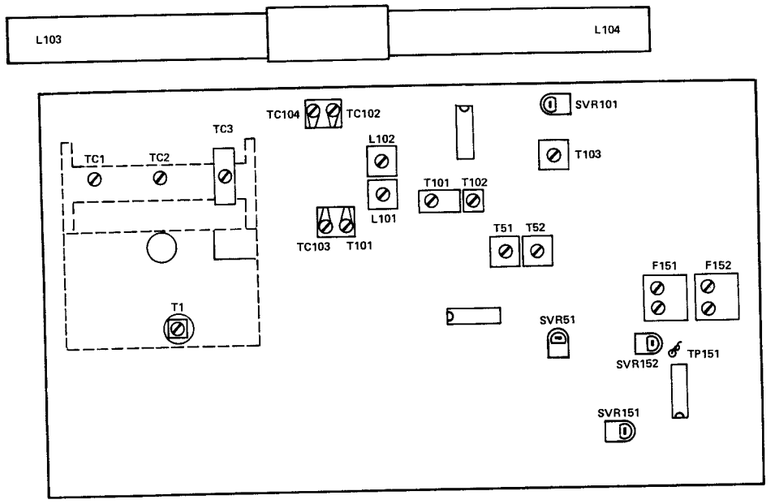
ALIGNMENT PROCEDURE

Note:
1. Signal input must be kept as low as possible to avoid AGC and limiting action.
2. FM-RF alignment on lower side can not be adjusted since a fixed coil is employed.
3. MW tracking also should be adjusted when you re-adjust LW tracking.
4. Do not try to adjust filters (F151, 152) since their alignment needs special instruments.

Step	Signal Generator		Dial Setting	Output indicator, connection	Adjust	Adjust for
	Connection	Setting				
	AM-IF ALIGNMENT					
1.	Push the MW button.					
2.	(A)	455 kHz 400 Hz (Mod) 30% (Dev.)	Point of non-inter-ference	Connect V.T.V.M. to Output Cable	T101 (IFT) T102 (IFT) T103 (IFT)	Maximum Output
	LW-RF ALIGNMENT					
3.	Push the LW button.					
4.	(B)	170 kHz 400 Hz (Mod.) 30% (Dev.)	170 kHz	Connect V.T.V.M to Output Cable	L102 (LW OSC coil) L103 (LW ANT coil)	Maximum Output
5.	(B)	320 kHz 400 Hz (Mod.) 30% (Dev.)	320 kHz	Connect V.T.V.M. to Output Cable	TC103 (LW OSC trimmer) TC102 (LW ANT trimmer)	Maximum Output
6.	Repeat steps (4) and (5).					
	MW-RF ALIGNMENT					
7.	Push the MW button.					
8.	(A)	600 kHz 400 Hz (Mod.) 30% (Dev.)	600 kHZ	Connect V.T.V.M. to Output Cable	L101 (MW OSC) coil) L104 (MW ANT coil)	Maximum Output
9.	(A)	1400 kHz 400 Hz (Mod.) 30% (Dev.)	1400 kHz	Connect V.T.V.M. to Output Cable	TC101 (MW OSC trimmer) TC104 (MW ANT trimmer)	Maximum Output
10.	Repeat steps (8) and (9)					
	AM SIGNAL METER ALIGNMENT					
11.	(A)	1000 kHz 80 dB. 400 Hz (Mod.) 30% (Dev.)	1000 kHz	SIGNAL Meter	SVR101	Needle deflection as shown in Fig. 1
	FM-IF ALIGNMENT					
12.	Push the FM AUTO button. (FM MUTING ..... off)					
13.	No signal	–	Point of non-inter-ference	FM TUNING meter	T51 (FM DISCRI IFT)	Center position of the meter scale.
14.	(C)	98 MHz 60 dB. 1 kHz (Mod.) 100% (Dev.)	98 MHz	Connect distortion meter to output cable	T52 (FM DISCRI IFT) TI (FM IFT)	Minimum Distortion
	FM-RF ALIGNMENT					
15.	(C)	106 MHz 60 dB. 1 kHz (Mod.) 100% (Dev.)	106 MHz	Connect V.T.V.M. to output cable	TC3 (FM OSC trimmer) TC1 (FM ANT trimmer) TC2 (FM RF trimmer)	Maximum Output

Step	Signal Generator		Dial Setting	Output indicator, connection	Adjust	Adjust for
	Connection	Setting				
	FM SIGNAL METER ALIGNMENT					
16.	(C)	98 MHz 80 dB. Mod··· off	98 MHz	SIGNAL meter	SVR51	Needle deflection as shown in Fig. 2
	FM MPX PILOT ALIGNMENT					
17.	Push the FM MUNTING button.					
18.	No signal	—	Point of non-interference	Connect frequency counter to TP151 and ground.	SVR151	19kHz ± 10Hz
	FM STEREO SEPARATION ALIGNMENT					
19.	Release the FM MUTING button.					
20.	(D)	98 MHz 60 dB. 1 kHz (stereo mod. L or R) 30% (Dev.)	98 MHz	Connect V.T.V.M. to output cable right channel or left channel.	SVR152	Left mod. · ··· minimum right output Right mod. · · · minimum left output

ALIGNMENT COMPONENT VIEW
(COMPONENT SIDE)



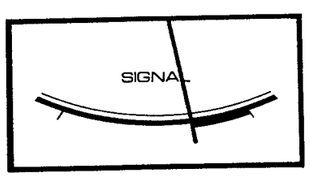


Fig. 1

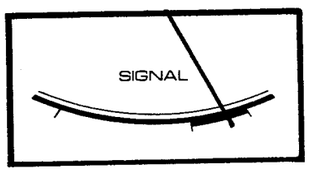
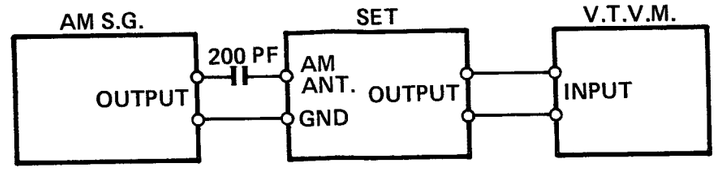


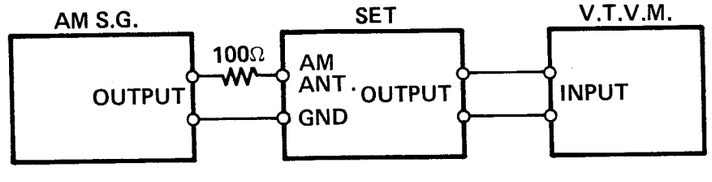
Fig. 2

CONNECTING DIAGRAM

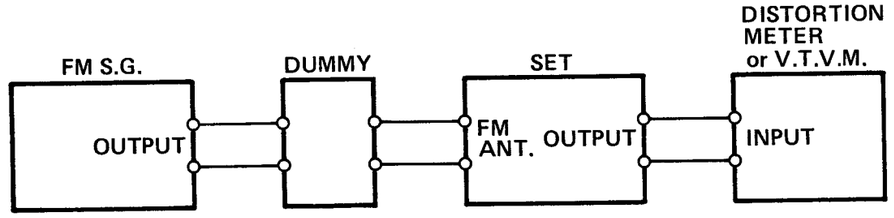
(A)



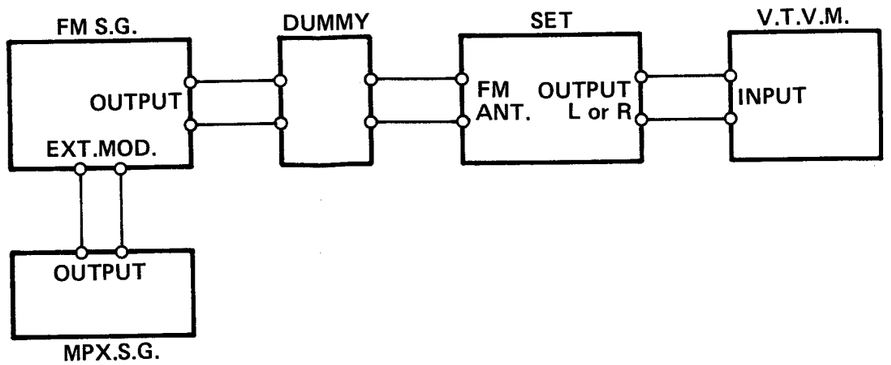
(B)



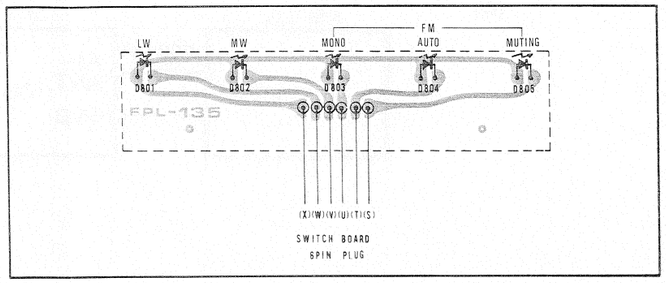
(C)



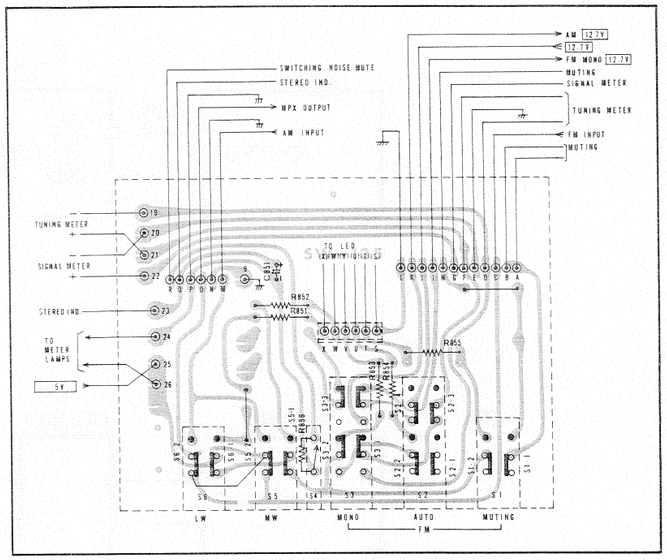
(D)



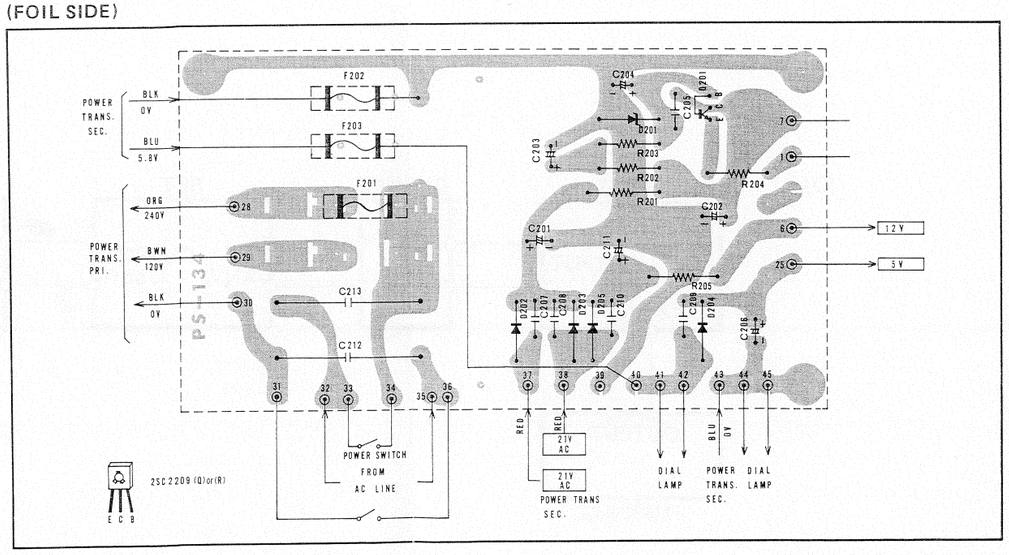
INDICATOR BOARD (FPL-135)
(FOIL SIDE)



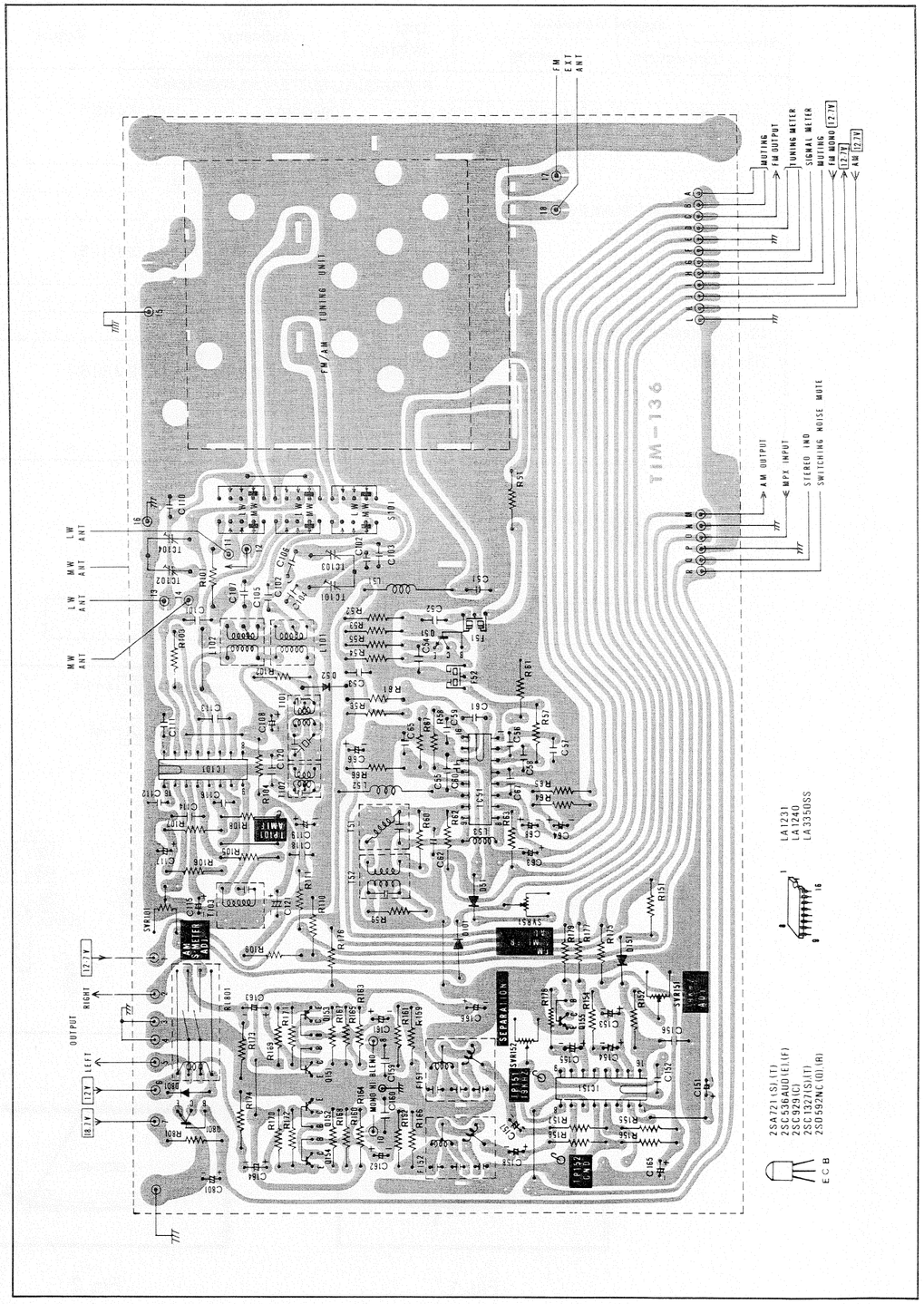
SWITCH BOARD (SW-135)
(FOIL SIDE)



POWER SUPPLY BOARD (PS-134)
(FOIL SIDE)

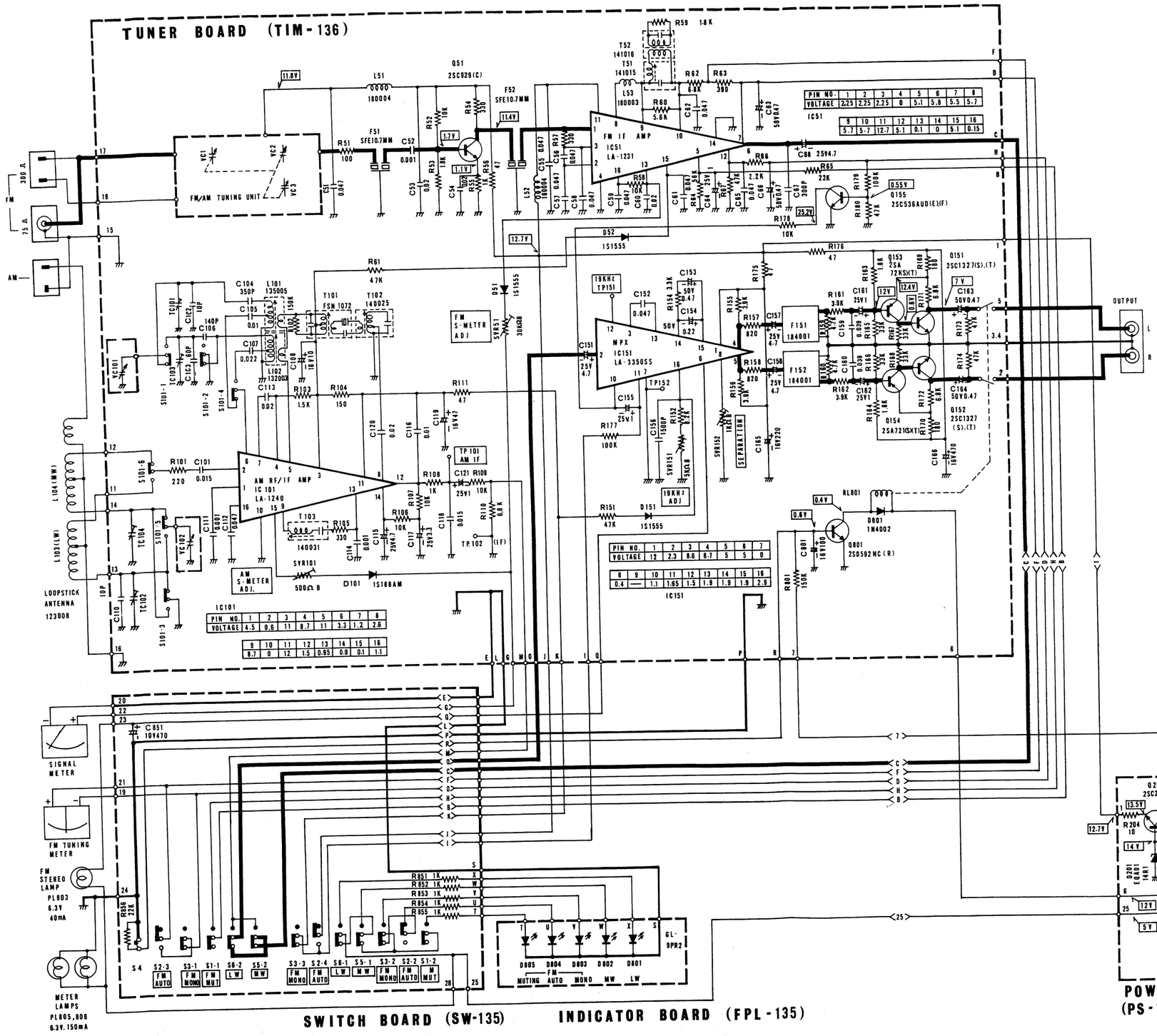


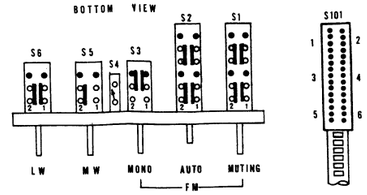
TUNER BOARD (TIM-136)
(FOIL SIDE)



T3000

SCHEMATIC DIAGRAM





NOTE:

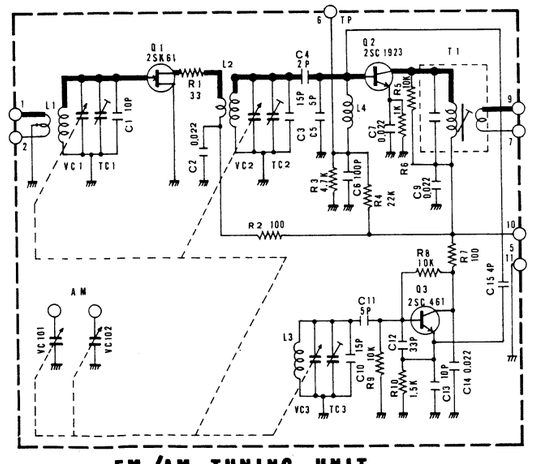
(1) ALL VOLTAGE READINGS WERE MADE UNDER NO SIGNAL CONDITIONS AND MAY VARY WITH A SIGNAL APPLIED.

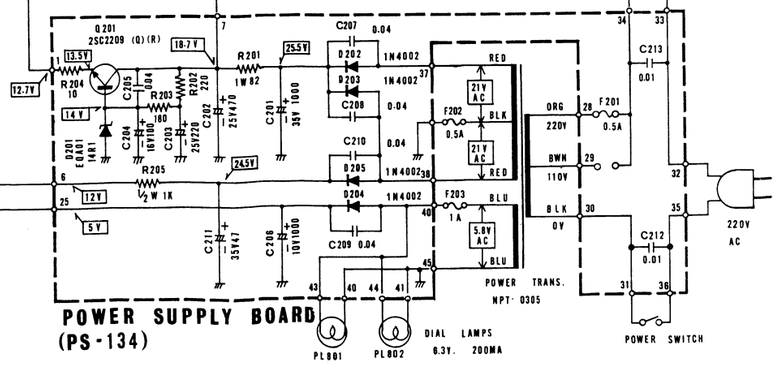
(2) DC VOLTAGE MEASUREMENT WERE TAKEN WITH A HIGH IMPEDANCE INPUT VOLTMETER FROM THE POINT INDICATED TO THE CHASSIS GROUND. VOLTAGES MAY VARY ±20%.

(3) UNLESS OTHERWISE SPECIFIED RESISTORS ARE ¼% WATT AND CAPACITORS IN μF.

(4) ⏚ THIS SYMBOL INDICATES GROUND.

(5) BOLD LINE INDICATES THE ROUTE OF FM SIGNAL.





VOLTAGE CONVERSION

Remove the 0.5-ampair fuse in the fuse clip (A), and then install it in the fuse clip (B) as shown in Fig. 3.

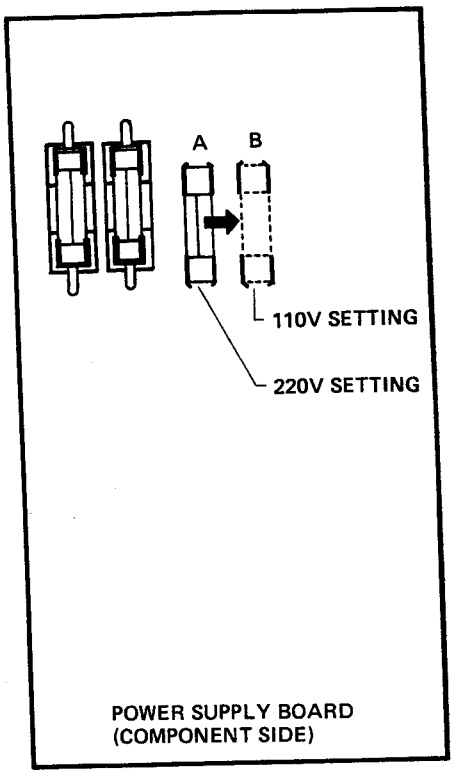


Fig. 3

STRINGING DIAGRAM